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10/648,176	08/25/2003	Vladimir Gurevich	1400-42 (1575)	4436

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EXAMINER	
FUREMAN, JARED	

ART UNIT	PAPER NUMBER
2876	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/648,176	GUREVICH ET AL.
	Examiner	Art Unit
	Jared J. Fureman	2876

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 19 December 2007.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-26 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-26 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Receipt is acknowledged of the response, filed on 12/19/2007, which has been entered in the file. Claims 1-26 are pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida (EP 0 335 656 A1, cited by applicant) in view of Kirkpatrick (US 4,958,064, previously cited).

Re claims 1-14: Yoshida teaches a system and method for imaging, said system and method comprising: a reader (see figure 2) comprising an image sensor (image pick-up element 3, figure 2 and column 2, line 45) for imaging a target (whatever is within the image pick-up element's field of view, target screen H_f, for example) and generating at least one data signal (amplitude values of blue, green and red signals S_B, S_G and S_R from the image pick-up element 3, A/D converter 12 and associated circuitry, see column 2, lines 56-58) representative of at least one parameter of at least one wavelength component of said target impinging onto said image sensor, and at least one lens (zoom lens 2, figure 2, column 2, line 37) positioned for movement along an optical axis of said reader (see figure 2 and column 2, lines 43-55), wherein each of said

at least one data signal represents a particular color (green light L_G, blue light L_B and red light L_R, see figure 3 and column 2, lines 43-55); a signal processor (auto-focus control circuit 10, which comprises a computer processing circuit such as a microprocessor, see figure 2 and column 3, lines 36-38) comprising means (means within the auto-focus control circuit 10, see column 3, line 36 - column 4, line 18) for performing an analysis (an analysis of the amplitude values of the blue, green and red signals S_B, S_G and S_R, respectively, see at least steps 104, 105, 110, 113 and 116 in figure 6) utilizing principles of axial chromatic aberration and at least one value indicative of the parameter of the at least one wavelength component, and means (means within the auto-focus control circuit 10 and focus position control circuit 15, see column 4, lines 12-18) for determining an amount of movement of said at least one lens for adjusting a focus quality of an image corresponding to said target and impinged onto said image sensor, such that said amount of movement is determinative by data signals representing one or more colors (the blue, green and red signals S_B, S_G and S_R from the image pick-up element 3, see column 2, lines 56-58 and column 4, lines 3-32), wherein said analysis is performed while maintaining amplitude values respectively corresponding to a first, a second and a third wavelength component of the at least one wavelength component at substantially the same value (the analysis of the blue, green and red signals is performed while the respective amplitude values of the blue, green and red signals are substantially constant, since the position of the lens/focus ring is moved, if necessary, after the analysis is performed, see figure 6); an actuator (not shown, but necessarily present, see column 4, lines 12-18 and column 5, lines 30-36)

operatively coupled to said at least one lens for moving said at least one lens along said optical axis of said reader by at least the determined amount for adjusting the focus quality of said image;

wherein said processor further comprises means (means within the auto-focus control circuit 10) for determining a distance to said optical target by accessing at least one data structure (a table of values stored in an internal ROM, not shown, see figure 5 and column 3, line 61 - column 4, line 32) and correlating the at least one value indicative of the parameter of the at least one wavelength component to said distance (the properly focus position P is indicative of the distance to the optical target, see figure 4 and column 5, lines 1-42);

further comprising a feedback system, including the image sensor (image pick-up element 3) and the signal processor (auto-focus control circuit 10), for repeatedly generating the at least one data signal and performing said analysis, until said signal processor determines the target is in focus (also see the flow chart of figure 6);

further comprising a controller (focus position control circuit 15, see figure 3 and column 4, lines 12-18) for controlling the actuation of said actuator;

wherein said at least one wavelength component is selected from the group consisting of blue, green and red wavelength components (see column 3, lines 10-15);

wherein said means for performing said analysis comprises means for performing the steps of determining a difference by subtracting a first wavelength component of said at least one wavelength component from a second wavelength component of said at least one wavelength component (steps 104, 105, 110, 113 and

116, of the flow chart in figure 6, wherein it is determined whether one signal is greater than another, is analogous to subtracting a first wavelength component from a second wavelength component); determining whether the difference necessitates movement of said at least one lens along said optical axis (steps 106, 107, 111, 112, 114, 115, 117, 118, 119 and 120, see figure 6), wherein said amount of movement is determined if the difference necessitates movement of said at least one lens; and determining a direction of movement of said at least one lens according to whether the difference is positive or negative, if said difference necessitates movement of said at least one lens (see figure 6 and the corresponding description at column 6, line 5 - column 7, line 50);

wherein said means for performing said analysis comprises means for performing the steps of: determining a difference by subtracting said at least one value from a value stored within a memory (the values S_B', S_G' and S_R', represent the normalized values stored in the table stored in memory, see figures 5 and 6) or by subtracting said stored value from said at least one value and taking an absolute value of said difference; and determining whether the difference necessitates movement of said at least one lens along said optical axis, wherein said amount of movement is determined if the difference necessitates movement of said at least one lens (see figure 6 and the corresponding description at column 6, line 5 - column 7, line 50); (also see figures 2-6, column 2, lines 7-21, column 2, line 35 - column 5, line 42, column 6, line 5 - column 7, line 50 and column 8, lines 12-15).

Re claims 15-26: Yoshida teaches a system and method for imaging, said system and method comprising: a reader (see figure 2) comprising an image sensor

(image pick-up element 3, figure 2 and column 2, line 45) for imaging a target (whatever is within the image pick-up element's field of view, target screen H_f, for example) and generating a first, second and third data signal (amplitude values of blue, green and red signals S_B, S_G and S_R from the image pick-up element 3, A/D converter 12 and associated circuitry, see column 2, lines 56-58) representative of at least one parameter of a first, second and third wavelength component (the blue light L_B, green light L_G, and red light L_R) of said target impinging onto said image sensor, and at least one lens (zoom lens 2, figure 2, column 2, line 37) positioned for movement along an optical axis of said reader (see figure 2 and column 2, lines 43-55), wherein each of said at least one data signal represents a particular color (green light L_G, blue light L_B and red light L_R, see figure 3 and column 2, lines 43-55); a signal processor (auto-focus control circuit 10, which comprises a computer processing circuit such as a microprocessor, see figure 2 and column 3, lines 36-38) comprising means (means within the auto-focus control circuit 10, see column 3, line 36 - column 4, line 18) for performing an analysis (an analysis of the amplitude values of the blue, green and red signals S_B, S_G and S_R, respectively, see at least steps 104, 105, 110, 113 and 116 in figure 6) utilizing principles of axial chromatic aberration and at least one value indicative of the parameter of the at least one wavelength component, wherein said analysis is performed while maintaining amplitude values respectively corresponding to a first, a second and a third wavelength component of the at least one wavelength component at substantially the same value (the analysis of the blue, green and red signals is performed while the respective amplitude values of the blue, green and red signals are

substantially constant, since the position of the lens/focus ring is moved, if necessary, after the analysis is performed, see figure 6), and means (means within the auto-focus control circuit 10 and focus position control circuit 15, see column 4, lines 12-18) for determining an amount of movement of said at least one lens for adjusting a focus quality of an image corresponding to said target and impinged onto said image sensor, such that said amount of movement is determinative by data signals representing one or more colors (the blue, green and red signals S_B, S_G and S_R from the image pick-up element 3, see column 2, lines 56-58 and column 4, lines 3-32); an actuator (not shown, but necessarily present, see column 4, lines 12-18 and column 5, lines 30-36) operatively coupled to said at least one lens for moving said at least one lens along said optical axis of said reader by at least the determined amount for adjusting the focus quality of said image;

wherein said processor further comprises means (means within the auto-focus control circuit 10) for determining a distance to said optical target by accessing at least one data structure (a table of values stored in an internal ROM, not shown, see figure 5 and column 3, line 61 - column 4, line 32) and correlating the at least one value indicative of the parameter of the at least one wavelength component to said distance (the properly focus position P is indicative of the distance to the optical target, see figure 4 and column 5, lines 1-42);

wherein said at least one wavelength component is selected from the group consisting of blue, green and red wavelength components (see column 3, lines 10-15);

wherein said means for performing said analysis comprises means for performing the steps of determining a difference by subtracting a first wavelength component of said at least one wavelength component from a second wavelength component of said at least one wavelength component (steps 104, 105, 110, 113 and 116, of the flow chart in figure 6, wherein it is determined whether one signal is greater than another, is analogous to subtracting a first wavelength component from a second wavelength component); determining whether the difference necessitates movement of said at least one lens along said optical axis (steps 106, 107, 111, 112, 114, 115, 117, 118, 119 and 120, see figure 6), wherein said amount of movement is determined if the difference necessitates movement of said at least one lens; and determining a direction of movement of said at least one lens according to whether the difference is positive or negative, if said difference necessitates movement of said at least one lens (see figure 6 and the corresponding description at column 6, line 5 - column 7, line 50);

wherein said means for performing said analysis comprises means for performing the steps of: determining a difference by subtracting said at least one value from a value stored within a memory (the values S_B‘, S_G‘ and S_R‘, represent the normalized values stored in the table stored in memory, see figures 5 and 6) or by subtracting said stored value from said at least one value and taking an absolute value of said difference; and determining whether the difference necessitates movement of said at least one lens along said optical axis, wherein said amount of movement is determined if the difference necessitates movement of said at least one lens (see figure 6 and the corresponding description at column 6, line 5 - column 7, line 50);

wherein said method utilizes principles of axial chromatic aberration, wherein a first wavelength (S_B, see figure 4) having said first wavelength component has an optimum focus at a first focus plane (A, see figure 4) and a second wavelength (S_G, see figure 4) having said second wavelength component has an optimum focus at a second focus plane (P, see figure 4), and wherein said first and second focus planes are different due to axial chromatic aberration; (also see figures 2-6, column 2, lines 7-21, column 2, line 35 - column 5, line 42, column 6, line 5 - column 7, line 50 and column 8, lines 12-15).

Yoshida fails to specifically teach the reader being an optical code reader; the target being an optical code; a decoder for decoding data encoded by said image; the processor performing said analysis until data is decodable by said decoder; the optical code reader further comprising an illumination apparatus for illuminating a field of view, said field of view including the optical code.

Kirkpatrick teaches an optical code reading system and method for imaging and decoding optical codes. The system and method uses a reader (video camera 22, figures 1, 6 and 8) for imaging an optical code (12, figures 1 and 6) and a decoder (within digital computer 18, figure 6) for decoding data encoded by the image. The digital computer 18 includes a processor (52, figure 6) that analyzes a digitized version of the video signal (20) and commands the camera to zoom and/or focus until an optical code (bar code 30 on card 12, see figures 6 and 7) is decoded. The system further

includes an illumination apparatus (light source L, figures 1 and 6) for illuminating a field of view. (see figures 1, 6-8; column 1, lines 44-49; column 4, lines 4-36; column 5, lines 14-19, 31-49; and column 6, lines 3-25, 44-52).

In view of Kirkpatrick's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system and method as taught by Yoshida, the reader being an optical code reader; the target being an optical code; a decoder for decoding data encoded by said image; the processor performing said analysis until data is decodable by said decoder; the optical code reader further comprising an illumination apparatus for illuminating a field of view, said field of view including the optical code; in order to provide decoding of optical codes, thereby increasing the number of applications in which the reader/camera may be used (see column 1, lines 44-49 and column 4, lines 4-17).

Response to Arguments

3. Applicant's arguments filed 12/19/2007 have been fully considered but they are not persuasive.

Applicants argue that since Yoshida is directed to an automatic focus control apparatus suitable for use in auto-focus television cameras and Kirkpatrick is directed to a bar code locator and reading system for use in locating and reading bar codes on movable objects there is no suggestion or motivation in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the

references or to combine their respective teachings (see pages 14-15 of the response filed on 12/19/2007), the Examiner respectfully disagrees. Yoshida does not limit his invention to television cameras, but teaches that the invention can also be applied to other apparatus (see column 8, lines 12-15, of Yoshida). This is a clear suggestion to utilize Yoshida's teachings in other camera or image taking environments. As discussed in the rejection above, Krikpatrick teaches the use of a video camera 22 with bar code decoding/processing components. This allows use of the camera and bar code decoding/processing components in various applications where it is desired to capture and decode bar codes (see column 1, lines 44-49 and column 4, lines 4-17, of Kirkpatrick). Furthermore, the prior art of record clearly and unquestionably teaches that the combination of a television camera and bar code reading/processing components was old and well known to those of ordinary skill in the art at the time of the invention. For example, see Amir et al (US 5,434,403; abstract and column 1, line 55 - column 2, line 15), Adachi (US 5,378,881; column 5, lines 1-9) and Hashimoto et al (US 4,192,452; abstract, column 1, lines 5-10 and 46-58 and column 4, lines 8-15). Each of these references was cited in the last office action (see the conclusion on page 11, of the office action mailed on 08/22/2007). Thus, one of ordinary skill in the art at the time of the invention would have combined the teachings of Yoshida and Kirkpatrick in order to provide decoding of optical codes, as taught by Kirkpatrick, with the improved auto focus control apparatus, as taught by Yoshida, thereby increasing the number of applications in which the reader/camera may be used.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jared J. Fureman whose telephone number is (571) 272-2391. The examiner can normally be reached on 8:00 am - 5:30 PM M-T, and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on (571) 272-2398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jared J. Fureman/
Primary Examiner, Art Unit 2876

March 3, 2008